

# Renewing USAID Investment In Global Long-Term Training and Capacity Building In Agriculture and Rural Development



**BOARD FOR INTERNATIONAL FOOD AND  
AGRICULTURAL DEVELOPMENT  
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## TRANSMITTAL TO ADMINISTRATOR NATSIOS

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*by The Board on International Food and Agricultural Development*

We are pleased to transmit this proposal to renew USAID's international leadership in long-term graduate training and capacity building in agriculture and rural development. For several decades following World War II, the United States contributed to the development of institutions of higher learning around the world. Students trained in the U.S., as well as in universities in their own countries, made it possible for many countries to benefit from modern technology.

Since people are a nation's most vital resource, we urge USAID to reintegrate an emphasis on advanced education into its critical development assistance efforts around the world. The U.S. has vital health, economic and security interests—and a moral obligation—to ensure that billions of people in developing nations are not left out of the global economy.

We appreciate the work of the Association Liaison Office (ALO), which stimulated this BIFAD effort. We are particularly grateful to Professor Carl Eicher for his dedication to higher learning in Africa. His research, analysis and vision form the core of this proposal.

The Board looks forward to working with USAID in implementing this important and ambitious effort.

# LIST OF ABBREVIATIONS

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**ACDI-VOCA**

Agricultural Cooperative Development  
International – Volunteers in Overseas  
Cooperative Assistance

**AERC**

African Economic Research Consortium

**ALO**

Association Liaison Office for University  
Cooperation in Development

**ASARECA**

Association for Strengthening Agricultural  
Research in Eastern and Central Africa

**AVU**

African Virtual University

**BIFAD**

Board for International Food and Agricultural  
Development

**CAP**

Competitive Academic Partnership

**CGIAR**

Consultative Group on International  
Agricultural Research

**CORAF**

Council on Research for Agriculture in  
Western and Central Africa

**CRSP**

Cooperative Research Support Program

**DVD**

Digital Video Disc

**ECA**

Economic Commission for Africa

**EMBRAPA**

Brazilian National Agricultural Research  
Corporation

**GMO**

Genetically Modified Organism

**GPS**

Global Positioning System

**HIV/AIDS**

Human Immunodeficiency Virus/Acquired  
Immune Deficiency Syndrome

**IAAE**

International Association of Agricultural  
Economists

**ICA**

International Cooperation Association

**ICT**

Information and Communication  
Technology

**IDRC**

International Development Research  
Center

**IEHA**

Initiative to End Hunger in Africa

**LTT**

Long-term Training

**NAAEA**

National Association of Agricultural  
Economics Administrators

**NASULGC/ICOP**

National Association of State  
Universities and Land-Grant  
Colleges/International Committee on  
Organization and Policy

**NEPAD**

New Partnership for Africa's  
Development

**NORAD**

Norwegian Agency for Development  
Cooperation

**PROAGRI**

Agricultural Sector Public Expenditure  
Program

**SIDA**

Swedish International Development  
Agency

**UPLB**

University of the Philippines at Los  
Banos

**WTO**

World Trade Organization

## EXECUTIVE SUMMARY

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During the 1990s, USAID virtually withdrew its support to developing countries for long-term graduate student training in the U.S., thus depriving many students of access to one of the best systems of higher education in the world. Historically, USAID has been a strong supporter of long-term training and of strengthening agricultural institutions in developing countries. In 1990, USAID funded a total of 9,128 students from developing countries in all disciplines; by 2000 the number had dropped to 1,212. The decline is also dramatic in the disciplines of agriculture and rural development—from 310 students in 1990 to 82 students in 2000.

The Board for International Food and Agricultural Development (BIFAD) is deeply concerned about the decline of graduate long-term training (LTT) in USAID's portfolio and its impact on economic development in the poorest nations of the world.<sup>1</sup> Without access to advanced knowledge in fields as diverse as trade, biotechnology, agriculture, education, infectious diseases, information technology, energy, and environment, developing countries will grow more marginalized. This marginalization will only worsen as the already deep economic, digital, technical and health-related "divides" with the industrialized world further widen. The situation is most bleak in countries where human capital is being ravaged by the HIV/AIDS pandemic. The U.S. has strong self-interests in building economies to lessen such suffering and lack of opportunity for a large portion of the world's population.

The decline of funding for LTT is also disturbing because it precludes the development of long-term professional relationships between researchers and educators in the U.S. and those in less-industrialized countries. Maintaining these bonds is beneficial and important to U.S. scientific, economic and, ultimately, national security interests. The cadre of developing country professionals—including national leaders—educated in the U.S. is rapidly declining as those trained in past decades retire, leading to a weakening of those bonds which have helped to keep the U.S. engaged in the world. The costs of disengagement are apparent today as the U.S. struggles to build scientific and cultural bridges with Central Asia and the Middle East, and participates in the ongoing, difficult debate over the role of GM commodities in reducing African hunger.

This document presents the rationale and a specific proposal for a "Second Generation" training and capacity-building program that generates more advanced degree holders in agriculture and agribusiness and strengthens the capacity of developing countries' own public and private institutions to train students and carry out research. USAID goals for LTT and capacity building also represent an opportunity to strengthen ties between U.S. universities and those in developing countries, without which there is less chance of achieving these goals.

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<sup>1</sup> BIFAD was created as a Presidential Board with the enactment of Title XII of the Foreign Assistance Act of 1961, as amended in 1975. The purpose of BIFAD is to advise and assist the Administrator of the U.S. Agency for International Development in developing and implementing the official U.S. foreign assistance program. The members of the BIFAD Board are Peter McPherson, Chairman; William DeLauder; Michael Deegan; Stuart Iverson, Jr.; Anthony Laos; Sharon Quisenberry; and Carol Lewis.

## **RECOMMENDATIONS**

1. ***USAID should renew its commitment to long-term training (LTT) and capacity building as an integral part of its development activities around the world.***

USAID should lead U.S. efforts to help developing countries increase the pool of advanced degree recipients in agriculture and agribusiness. The present cadre of competent developing country leaders, managers, professionals and scientists—many educated in the U.S—is ravaged by HIV/AIDS and nearing retirement. They must be replaced in order to achieve developing country objectives of vibrant economies and healthy, productive populations.

2. ***USAID should re-engage U.S. universities in graduate education because it is one of the best ways of ensuring that future developing country leaders learn about the U.S. and develop lasting personal relationships with U.S. colleagues.***

Developing countries and the U.S. benefit significantly from the professional collaborations and personal relationships that form during graduate training. Many developing country students move into positions of professional and national leadership, carrying with them lasting friendships and goodwill toward the U.S.

3. ***The U.S. government should commit additional resources for LTT and capacity building in developing countries, and use these resources to attract additional funding from private sources.***

4. ***New LTT activities should be planned, implemented and assessed in partnership with recipients and key donors who already have important efforts underway.***

The approach to LTT and human capacity development has evolved since USAID led the world in these fields during the 1950s to 1980s. Today, it is recognized that success largely depends on leadership and ownership by recipient country professionals and the integration of donor programs with programs of developing countries.

5. ***USAID should integrate the following goals into USAID country mission and regional efforts:***

Provide substantial assistance for training the next generation of developing country scientists and university teachers in order to fill critical gaps in faculties of agriculture, national agricultural research and extension systems, and the private sector.

Strengthen the capacity for research and training of universities and faculties of agriculture in developing countries through competitive academic partnerships with U.S. universities.

Mobilize the resources of U.S. universities and the private sector to help build strong national agricultural-science capacity, including faculties of agriculture, in developing countries.

Develop a strategy to link national and regional long-term training and capacity-building efforts, ensuring that new programs complement ongoing efforts by governments and other donors. For each country, develop specific plans for addressing training needs through a combination of national, regional and overseas education programs.

Develop new approaches that lower the cost and improve the effectiveness of regional and overseas training programs. New approaches must allow developing countries to tap into the research and intellectual resources of U.S. universities without necessarily committing students to a multi-year U.S. residence. Examples of creative programs include:

- ❑ Summer training workshops in developing countries taught by U.S. professors in collaboration with local scholars,
- ❑ Greater use of information and communications technology, and
- ❑ “Sandwich programs,” which combine beginning coursework at home, advanced coursework at universities in the South and/or North, and thesis research at home.

Reduce the "brain drain" by improving the work environment and incentives for advanced degree recipients returning to their home countries. The objectives of LTT should not be limited to producing more advanced degree recipients. New-style Competitive Academic Partnership (CAP) programs can build host country education and research capacities, nurture institutional relationships, and support joint research and mentoring for returning young professionals.

Begin the program in 2004 with a launch in three countries and two to three regional programs in Africa and rapidly scale up the program in 2005 to include other countries and regional programs.

# HUMAN CAPITAL AND DEVELOPMENT IN THE NEW MILLENNIUM

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*...knowledge accumulation and application have become major factors in economic development and are increasingly at the core of a country's competitive advantage in a global economy.*

*World Bank, Constructing Knowledge Societies (2002)*

## INTRODUCTION

At the turn of the Millennium, we live in an extraordinarily competitive global economy driven by advancing knowledge. In industrialized countries, companies in the most advanced sectors rapidly integrate new knowledge into products—often totally turning over their product lines every half dozen years. New drugs and medical procedures, cellular phones incorporating digital cameras, DVDs, wireless computers, electronic banking, 'smart' electronic refrigerators, cars with GPS-guided directions—everything we do is continually being revolutionized by rapid advances in scientific knowledge.

*The true measure of the success of a program of international and technical collaboration is not in its accomplishments during the period it is in force but rather in what happens after foreign aid has been withdrawn.*

*- George Harrar, President,  
Rockefeller Foundation, 1967*

Because of deficiencies in the knowledge base and the institutional infrastructure that limit access to new technologies, perhaps 75 percent of the world's population is denied access to much that the citizens of the industrial world take for granted. Without access to appropriate human resources and advanced training in global issues—issues such as trade, biotechnology, agriculture, education, infectious diseases, information technology, energy, and environment—developing countries will remain on the development periphery, and the various "divides," whether economic, digital, technical, or health, will be exacerbated.

For countries where human capital is being ravaged by the HIV/AIDS pandemic, the situation is even worse. As societies lose their most productive and skilled people and institutions are hollowed out by HIV/AIDS, the capacity of afflicted countries to govern themselves, provide basic services, and manage economic and social development programs is becoming more and more untenable. Rapid replacement of human capital will be key to rebuilding these core capacities.

Yet, during the 1990's, U.S. support for long-term graduate training as part of development assistance dropped significantly. In 1990, USAID funded a total of 9,128 students from developing countries in all disciplines, but by 2000 the number had dropped to 1,212. The number of new starts in graduate (M.Sc. and Ph.D.) training in agricultural and rural development, including training under CRSPs (Cooperative Research Support Programs), fell from 310 students in 1990 to 82 in the year 2000. Although perhaps not surprising given increasing budget constraints and growing pressures on USAID missions to show short-term results, these figures

demonstrate the withdrawal from LTT for development by a nation with one of the best systems of higher education in the world.

The members of BIFAD are deeply concerned about the decline of LTT in USAID's portfolio and its impact on prospects for economic development among the poorest nations of the world. Although many developing country professionals who were trained during prior decades are nearing retirement, the capacity to train their replacements—the next generation—remains inadequate.

This document outlines the rationale for, and proposes a renewed, long-term commitment by USAID to, LTT and capacity building in universities and faculties of agriculture in developing countries. The basic premise of the second-generation global effort is that the ability of the poor countries to reduce hunger and poverty will heavily depend on the quality of human capital and the performance of core agricultural institutions such as research, extension, faculties of agriculture and private agricultural firms.

History adds a valuable perspective on the symbiotic relationship between LTT and capacity building in developing countries. Successful institution-building experiences in Brazil, India, Malaysia and Chile over the past 30 years reveals that, if they have access to scientific infrastructure, research funding, and attractive monetary and non-monetary incentives, scientists in overseas graduate training programs can be attracted to return home and pursue careers in their countries' core agricultural institutions and private sectors. The scientific infrastructure for effective and lasting academic partnership includes:

- Post-degree networking,
- Mentoring,
- Access to the global scientific literature,
- Availability of competitive research grants,
- Sabbatical leave, and
- Participation in on-going national and regional workshops on development policy, management and research topics.

BIFAD recommends launching this global training and capacity-building program in 2004 in three African countries—Mali, Uganda and Mozambique—and in several regional training centers in Africa and then scaling up the national and regional programs in other countries in 2005.

This proposed effort builds on many marvelous ideas expressed during interviews, correspondence and discussions at BIFAD meetings during the past year. Early drafts of this proposal were circulated widely, prompting comment from a broad range of development experts and educators around the world. (Please see the Appendix for the list of those individuals who contributed written comments.)

## **THE SECOND GENERATION CHALLENGE**

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Over the past 50 years, long-term training (LTT) of developing country students in the United States has moved through three stages. The first stage was a “golden age” of training from the 1950s to 1970s, in which the U.S. exhibited world leadership in education and in building rural institutions in developing countries. The 1980s and especially the 1990s brought a dramatic global retrenchment in donor investment in education in the developing world. The third and present stage brings renewed efforts, as foundations and some wealthy nations reinvigorate their development agendas, including renewing their emphasis on advanced education.

Developing nations need to replace much of the highly skilled generation educated in the golden age, a generation now retiring, and rebuild their human resources to compete in today’s global knowledge economy. The challenge to U.S. institutions is how to contribute to advanced education for this second generation in a world of vastly different government and private initiatives, institutions, technologies and costs.

### **THE GOLDEN AGE**

During the golden age, from the 1950s into the 1980s, USAID and its predecessor organization, ICA, provided global leadership in training students from developing countries in the United States. ICA also invested heavily in developing schools, faculties and universities of agriculture in developing countries. In addition, the Rockefeller and Ford Foundations played leadership roles in food and agriculture in Asia and Latin America. This was a golden age of conviction by donors, foundations and academics that sizeable resources should be invested in human capital and institution building because these two were the prime movers of agricultural development.

The most comprehensive data on agricultural training in the U.S. covers this period of the mid-1950s to the mid-1980s. Professor Burt Swanson of the University of Illinois reported that the total number of foreign students enrolled in agricultural sciences in the United States was 1,100 in 1955-56, 2,326 a decade later (1965-66), and almost 3,000 by 1973-74. Table 1 shows that two-thirds of the total trainees over the 20-year period were from Asia and Latin America, and the remaining one-third were almost equally divided between Africa and the Middle East. In terms of disciplines, roughly two-thirds of the students were trained in agricultural economics, agronomy, soils, plant science, animal science and food science.

**Table 1.** Total Foreign Student Enrollment in Agricultural Sciences at U.S. Universities by Geographic Regions for Selected Years (1955-1974)<sup>a</sup>

	Africa	Far East	Latin America	Near & Middle East	Total
1955-1956	73	317	468	242	1,100
1960-1961	153	508	522	324	1,507
1963-1964	314	562	531	323	1,730
1965-1966	542	846	556	382	2,326
1970-1971	401	1,304	919	309	2,933
1973-1974	482	1,366	814	314	2,976
Overall Percent	14.8	37.5	31.5	16.2	100

<sup>a</sup>1955-1956 through 1962-1963 includes both degree and non-degree students.

**Source:** Swanson (1986), citing data from International Institute of Education, Open Doors, 1956-1974.

The USAID dual training/capacity-building model was initiated in the early fifties and provided global leadership until the 1980s.<sup>2</sup> Four early capacity-building experiences chronicle the success of this model:

- **Philippines:** Cornell University (with U.S. funding) helped elevate the college of agriculture at Los Banos in the Philippines to form the University of the Philippines Los Banos (UPLB) (Turk 1974). Today, UPLB is an important regional graduate training center in agriculture for many students from Asia.
- **India:** USAID assisted India in developing a new university model called the State Agricultural University Model (Read 1974; Lele & Goldsmith 1989). Currently, 31 State Agricultural Universities serve India. India's National Agricultural Research System has approximately 25,000 agricultural scientists in government and universities, representing 8,000 person-years of scientific talent.
- **Ethiopia:** From 1952 to 1968, Oklahoma State University, with USAID funding, assisted in building a productive College of Agriculture. Later, the College was upgraded to become Alemaya University of Agriculture. Today, Alemaya University is a household name in Ethiopia. The USAID mission in Addis Ababa recently awarded a \$10 million contract to Virginia Tech, Cornell University, Virginia State and ACDI-VOCA (an NGO) to strengthen research and extension in the Amhara administrative region.
- **Brazil:** In 1963, the government made a political decision to build a human capital base for a modern agriculture. With USAID financing, four American land grant universities spent a decade assisting four Brazilian universities in

<sup>2</sup> In 1963, 72 universities in the United States were performing training and technical assistance tasks under 129 different contracts with USAID (Gardner 1964). The Gardner report recommended that a new unit be established within USAID to deal with education and human resources and universities and foundations.

strengthening B.Sc.-level training in Brazil, followed by another four years of support for postgraduate education (Sanders, et al 1989). In 1972, the government established EMBRAPA (Brazilian National Agricultural Research Corporation) to coordinate its national research program. EMBRAPA launched a massive human capital program and spent 20 percent of its total budget from 1974 to 1982 on training programs in Brazil and abroad. In fact, in the late 1970s and 1980s, EMBRAPA had an average of more than 300 researchers enrolled each year in postgraduate training programs. Today, one-third of EMBRAPA scientists have a Ph.D. degree, half have an M.Sc. degree, and the balance have a B.Sc. (Beinetma, et al, 1998).

USAID's capacity-building efforts in agricultural higher education were mounted in Africa in the 1960s, following independence. New faculty and university projects were launched in Nigeria, Ghana, Sierra Leone, Uganda, Kenya, and many other countries. These new initiatives flourished in the sixties and seventies but civil war, lack of national political and financial support, and clashes over the land grant and colonial university models contributed to USAID's virtual withdrawal from university capacity building in the late eighties and nineties.<sup>3</sup>

## **RETRENCHMENT**

In the 1990s, the golden age was followed by a sharp decline of donor investments in higher education, and particularly in agriculture and agricultural training. For example, a recent study revealed that, from 1987 to 1997, the World Bank expended US\$4.8 billion on agricultural research, extension and agricultural higher education. Of that amount, 52 percent was allocated to agricultural research, 46 percent to agricultural extension, and only 2 percent to agricultural higher education (Willett 1998).

There were various reasons for the cutback in funding for overseas long-term training.

- First, by the 1980s, when India was "awash with grain," there was a perception that the world food crisis had been solved.
- Second, numerous universities in Asia and Latin America had improved their post-graduate training capacity to the point where most M.Sc.-level training could be done at home or in regional universities.
- Third, because of the political strife in Africa, a number of long-term institution-building projects were terminated.
- Fourth, the development paradigm in the 1980s shifted from institutional building to structural adjustment, policy reform, and governance.

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<sup>3</sup> The experience of the rise and decline of capacity building is captured in Wharton 1959; Mellor 1963; Gardner 1964; Odhiambo 1967; Harrar 1967; AID 1985; BIFAD 1987; Johnson and Okigbo 1989; Hansen 1990; Eicher 1990; Lele and Goldsmith 1989; World Bank 1992; Oniang'o and Eicher 1998; Samoff and Carrol 2002; and Smuckler 2003.

In addition to the drop in long-term degree training supported by USAID discussed earlier, new training starts in agriculture in developing countries had declined from the nine-year average of 1,313 during the 1986-94 period to 45 new starts in 1998 (Isleib 1998).

## RENEWAL

Over the past few years, there has been a renewed interest in investing in training and in building university capacity for development. The World Bank's new book, *Constructing Knowledge Societies: New Challenges*, makes a strong case for a renewal of investment in universities (2002). It describes the Bank's new tertiary education initiative and calls attention to the important public goods (new knowledge and technology) that are produced by universities and made available to all members of society.

Many countries in Africa have embarked on new initiatives to revitalize their universities (Saint 1992; AED 2000). For example, the University of Dar es Salaam, Makerere University, Eduardo Mondlane University and several others mounted aggressive reforms, including the introduction of student fees, setting up university consulting firms, and raising academic salaries (Court 1999).

Four U.S. foundations have supported a number of African-led initiatives to improve the relevance and quality of the educational experience in African universities. In 2000, the Rockefeller, Ford, Carnegie and MacArthur Foundations launched The Partnership for Higher Education in Africa. The Partnership provides a public symbol of support to Africa and a mechanism to provide meaningful financial assistance to its renaissance. The foundations agreed to a ten-year time frame and to spending \$100 million over the first five years to support universities pursuing reforms in Uganda, Tanzania, Mozambique, South Africa, Ghana and Nigeria. During the first two years (2000-01), the four foundations together contributed \$62 million to higher education in these six countries.

Four lessons flow from the first three years of experience of the Partnership for Higher Education in Africa:

- African self-initiated reforms. Several scholars in each Partnership country helped launch the program by first preparing a comprehensive assessment of the factors underlying the self-initiated reforms. Many of these are closely related to broad reforms, including democratization, economic liberalization, decentralization of governance, and increased autonomy and experimentation of public institutions. The staff in foundation offices in Nairobi, Abuja, and Johannesburg then worked closely with local administrators, academics and stakeholders in figuring out how the foundation(s) should respond to university requests stemming from strategic planning and tested innovations.
- Time. The foundations report that it took about a year in each country for administrators and African scholars to conduct country assessments and to develop priorities and business plans to reform their universities.

- Funding. The total foundation expenditure has been \$62 million in the first two years (2000 and 2001) in the six African countries. This lesson should be studied by USAID. The renewal of USAID support for graduate training and capacity-building programs cannot be financed on a shoestring.
- Long-term training. Staff development programs in the six Partnership universities are highly diverse. Some include traditional overseas Ph.D. programs. Some of the partnership universities have adopted the "sandwich course model" that enables young academic staff members to take their first year of graduate courses in their home universities before completing advanced course work abroad (in the South or the North) and then return home to complete their thesis research. Still others are taking advantage of "virtual" or distance education degrees. A few are experimenting with African-based graduate programs such as the African Economic Research Consortium's Ph.D. program in economics (Fine 1997).

## THE NEW EDUCATIONAL ENVIRONMENT

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Reinvigorating U.S. participation in the renewed global interest in advanced education will be challenging. The world is a very different place than it was during the golden age:

**Cost:** U.S. higher education institutions are no longer as globally dominant, so they must now compete with universities in developing countries that offer lower cost graduate training. Recent discussions with representatives of foundations, the World Bank, and U.S. universities reveal a concern that the U.S. is beginning to price itself out of the graduate education market. Two examples illustrate this point.

1. A decade ago, the Ford Foundation stopped sending South African students to the U.S. for M.Sc. degrees in agricultural economics because U.S. training was more costly (and time consuming) than a program at Wye College in the U.K.
2. The Rockefeller Foundation has recently launched a program to train 50 African plant breeders at the Ph.D. level at the University of Natal in South Africa. Students will take two years of course work at Natal and return home for their dissertation research. The tentative cost per student for the three-year program is U.S.\$55,000.

**Institutional Innovations:** Some observers contend that U.S. educators have been slow to invest in institutional innovations such as sandwich courses, information and communications technology (ICT), and distance education to reduce the cost of U.S. education and increase the percentage of students who return to their home countries.

**Rise of Third Country Training:** Questions are being raised about the relevance of U.S. course work and thesis research to developing country needs. Graduate education is in transition from dependence on the North to a new phase in which students are increasingly turning to graduate training in the South, at universities such as the University of the Philippines at Los Banos, Indian Agricultural Research Institute, Punjab Agricultural University, Asian Institute of Technology (Bangkok), University of Natal, University of Pretoria and the University of Cape Town in South Africa, and universities in Brazil and Chile.

**New Generation, Expanded Challenge:** Most of the first generation of agricultural teachers, extension workers and researchers who were trained in the 1960s and 1970s have retired. The challenge now is to train the second generation of agricultural and rural development specialists in agribusiness, financial markets, trade and biotechnology, as well as in traditional fields such as plant breeding, irrigation and agronomy.

**HIV/AIDS:** The HIV/AIDS crisis has added a new sense of urgency to the training challenge. Special efforts must be taken to increase the supply of new scientists rather than pull back and pretend the problem doesn't exist. Binswanger (2000) of the World Bank has emphasized the need to scale up programs to deal with the AIDS crisis, especially education programs for universities and national research and extension services in Africa (Yamano & Jayne 2002).

## **ALTERNATIVE LONG-TERM TRAINING (LTT) MODELS**

In past decades, U.S. universities led the way in long-term training and building international higher education institutions. Currently, however, contemporary needs and initiatives by developing countries and donors, along with the emergence of lower-cost educational institutions in the South, challenge U.S. universities to develop more cost-effective graduate training programs. As USAID refills the LTT pipeline, it is important to consider how to develop new models that will allow developing countries to build sustainable linkages to the critical research and intellectual resources of U.S. universities at a lower cost.

Many donors contend that U.S. universities should embrace distance education, make greater use of ICT, and experiment with new models such as sandwich courses and the use of retired faculty members and Peace Corps Volunteers for teaching and research assignments in overseas universities. To design a contemporary program of graduate education, it is necessary to review the pros and cons of several models of higher education, including the participant training overseas training model; the CRSP model of post-degree mentoring; and funding for joint research projects, sandwich courses, and the use of ICT and distance education courses and degree programs. There are also significant potential benefits from the development of regional education programs that build the capacity of institutions in developing countries to offer advanced education to students of nearby countries. U.S. universities can play a substantial role by partnering with developing country institutions in regional programs throughout the year, including sending faculty to participate in summer institutes.

In addition to cost or simply maximizing the number of foreign students trained, other factors need to be considered. How much is it worth to the U.S. for foreign graduate students to be trained in U.S. institutions in order to introduce them to U.S. culture, provide them with a greater understanding of U.S. norms and agricultural institutions, and build future partnerships between researchers in U.S. universities and those in developing countries?

### **REVIEW OF MODELS**

#### **Traditional Participant Training Model**

In the USAID participant training model, the developing country student receives her complete graduate education by attending a university in another country. It normally requires two years to complete an M.Sc. degree in the U.S. (2.5 years if English language training is needed) and three additional years for a Ph.D. degree. This is a proven model, but one which is being questioned because it is relatively expensive and the returnee rate by graduates to their home country is often low.

However, little is known about the comparative cost and direct and indirect benefits of local, regional and overseas M.Sc. and Ph.D. programs in the North and in the South (i.e., industrialized countries and developing countries). Table 2 summarizes the costs we were able to compile for comparison.

**Table 2.** Comparative Cost of Graduate Degrees in Agriculture

<u>Degree</u>	<u>Years</u>	<u>University/Country</u>	<u>Estimated Total Cost</u>	<u>Year</u>
			\$U.S.	
M.Sc.	2	U.S.	56,000	2003 incl. out-of-state tuition
M.Sc.	2	Australia	32,000	1998
M.Sc.	2	Southern Africa	31,000	1998*
M.Sc.	2.5	Makerere, Uganda	25,000	1998
M.Sc.	2	UPLB, Philippines	24,000	1998
M.Sc.	2	U Malawi	18,000	1997
Ph.D.	3	U.S. Universities	90,000	2003 incl. out-of-state tuition
Ph.D.	3	Asian Inst of Technology (Bangkok)	40,000	2003**
Ph.D.	3	U of Agriculture, Bangalore (India)	23,000	2003**
Ph.D.	3	University of Natal	55,000	2003

\*Total cost per M.Sc. degree in four specializations (agronomy, animal science, land and water management, and agricultural economics) in four universities in Southern Africa (Anandajayasekeram, et. al., 1996)

\*\*Suvedi (2003)

The financial cost for each student's graduate education is but one factor that needs to be weighed in considering this model. Continuing assessment will be necessary to weigh monetary and non-monetary costs and the benefits of the many options for local, regional and international graduate training for both the developing country and the U.S. as a source for education.

For a developing country, there are important benefits to building domestic high quality graduate programs, even if donors were willing to pay the full cost of overseas training and the overseas training was of higher quality than local training.

- First, the course work in local degree programs is likely to better prepare students for careers in agricultural extension because the courses are grounded in national agricultural policies and local agro-ecologies, institutions and farming systems.
- Second, the students in local M.Sc. and Ph.D. programs are more likely to focus their research on local and national problems than would students in overseas universities, who often have no alternative but to pursue research on problems of industrial agriculture.
- Third, the incremental build-up of the quality of local graduate programs would serve as an insurance policy if a donor discontinues offering scholarships for overseas study.

- Fourth, strengthening local graduate training and the accompanying research will contribute to the nation's scientific capacity, thus providing greater opportunities to retain advanced-trained graduates in local employment.

These direct and indirect benefits of local graduate training should be factored into comparative studies of the costs and benefits of local versus regional and overseas training. In any case, many developing country programs need to be improved as postgraduate students in numerous local M.Sc. programs complain of the time it takes (4 to 5 years) to complete a degree because of sporadic supervision.

When considering U.S. interests, cost and the need to build advanced education and research in the developing countries ought not be the sole criteria. Without question, the U.S. receives substantial benefits from hosting the long-term training of foreign students. Many of today's scientific and professional leaders in developing countries cherish the close, lifelong collegial relationships built during their several years of graduate training in U.S. universities. Personal relationships and foreign knowledge of the U.S. provide important benefits to U.S. research, economic and, ultimately, national security interests. The costs of recent disengagement are apparent today as the U.S. struggles to build scientific and cultural bridges with Central Asia and the Middle East, and engages in the ongoing difficult debate over the role of GMO commodities in resolving Africa's hunger crisis.

### **The CRSP and Other Cooperative Training Models**

The Collaborative Research Support Programs (CRSPs) and other USAID/university cooperative agreements provide graduate training as part of their broad research efforts. CRSPs were mandated in Title XII of the International Development and Food Assistance Act of 1975 between USAID and U.S. universities and other research organizations. The number of students trained under the nine current CRSP programs is impressive—about 850 PhDs and 960 MScs in a little more than two decades of operation. For the most part, CRSPs integrate a participant training model into their overall research program, then add post-degree mentoring, collaborative research grants, and career development, plus generate reverse technology flows from overseas research back to American farmers. The model provides a full education package at a lower cost for USAID than the participant training model because CRSP universities absorb some of the total cost by waiving out-of-state tuition. Other Cooperative Agreements with U.S. universities incorporate some of the same features as the CRSP, such as waiving out-of-state tuition and providing research support and mentoring for students when they return home for their thesis research.

### **Institutional Twinning**

Without question, some of the early U.S. twinning arrangements in the 1960s and 1970s were mutually productive success stories. These include Cornell University's Partnerships with the University of the Philippines at Los Banos (Turk 1974), the University of Minnesota's linkage with Hassan II University in Morocco, and Michigan State University's assistance in launching the first MBA degree program in Brazil, a program that Brazil subsequently modified and introduced in a number of other Latin American countries (Smuckler 2003).

But over the past 20 years, the U.S. has had a checkered experience in supporting twinning arrangements because changes in USAID strategies have often brought about short-term changes in university contractors. For example, the history of USAID support for the development of Egerton University in Kenya reveals that a changing array of U.S. institutions contributed to Egerton's transformation from a two-year diploma school to an agricultural university. But today Egerton is basically a general purpose university with a modest research budget for agricultural research.

On the other hand, universities in Europe have been tenacious in developing and sustaining twinning arrangements in developing countries. Donors, especially NORAD (Norwegian Agency for Development Cooperation) and SIDA (Swedish International Development Cooperation Agency), have funded these links (Fine 1994). For example, SIDA helped build forestry training capacity in Ethiopia over a 25-year period by first upgrading a two-year diploma program at Wondo Genet College of Forestry in Southern Ethiopia, which it followed with the joint development of a B.Sc. program and more recently a M.Sc. program offered by the recently created Debub University. In Tanzania, the government established a Faculty of Forestry at Sokoine University, to which NORAD provided US\$30 million of support from 1973 to 1991.

### **Regional Graduate Degree Programs**

Investing in interlinked country and regional educational efforts offers a means to build human capital in several countries concurrently. For example, 25 percent of the 600 students enrolled in the faculty of agriculture at the University of Mali are from surrounding francophone countries. The improvement of the scientific infrastructure of the University of Mali represents a cost-effective way to train undergraduate students from francophone West Africa in agriculture.

Another example is the new Masters degree program in agricultural and applied economics in Eastern and Southern Africa, a program designed to serve students from 16 departments of agricultural economics in 12 countries in the two regions. This effort began because of the critical shortage of economists in Africa. In 1988, a small group of funders helped launch the African Economic Research Consortium (AERC) on behalf of anglophone universities in Africa. The initial charge was to build local capacity for economic policy research by offering small collaborative grants to young African economists and to a few Ph.D. students to speed up degree completion. Later, the AERC introduced a regional master's program in economics in Africa (Fine 1997). This program has been very successful, and the AERC has recently launched a Ph.D. program in Economics at four African locations.

Because of the success of AERC's regional masters program in economics, the Rockefeller Foundation commissioned a study of the feasibility of launching a M.Sc. degree program in agricultural and applied economics that could serve multiple countries in Africa (Obwona and Norman 2002). If funding can be secured, the program will be launched at several sites in Eastern and Southern Africa in late 2004 or 2005 (Oluoch-Kosura & Fine 2003). This is a brilliant interlinked institutional innovation and illustrates how investments in high quality regional degree programs can assist a large number of countries.

### **Sandwich Courses**

“Sandwiching” coursework at a foreign university, while beginning and ending training at a local university, is increasing in popularity among African universities and donors because this approach is believed to reduce the number of students who remain overseas and never return home. Sandwich courses represent a transition strategy in reducing the dependence on overseas training. Students normally take their first year of graduate study at their home university and then go overseas to take advanced courses and develop a thesis proposal. The students return home to complete their research, and the home university awards the degree. Typically, donors do not provide funding for family members to join students overseas because having families with them is believed to increase the probability of foreign students not returning to their home countries.

But a decade of experience has shown that sandwich programs have two major problems. First, the success of sandwich programs is contingent upon mutually productive faculty-to-faculty linkages and an incentive structure that encourages and rewards local faculty members to mentor visiting graduate students who will ultimately receive their degrees from their home university. The second problem is that the students report that there are frequent delays in finding co-supervisors with resources and incentives to guide students and evaluate their thesis research in a timely manner (Fine 1997). These problems could be addressed if a faculty member served as a co-supervisor for the visiting student through the rest of his or her degree, and a donor would be paid for the faculty member to participate in the planning, travel and evaluation of the student's thesis. This approach would have the advantage of not draining the developing country universities of their best students, while still providing an important opportunity for those same students to take advantage of resources in U.S. universities

### **Regional Summer Institutes**

An international summer school program during the U.S. summer (June to September) in which U.S. professors offer graduate courses that respond to regional needs in identified areas in developing countries is a particularly attractive approach. The types and levels of the courses provided could vary according to market demand, and they could be offered for either credit or non-credit. The students would be drawn from a specific sub-region, and the summer institutes could be co-hosted with a local university or a sub-regional organization such as CORAF or ASARECA. Such summer institutes offer benefits to both the developing countries and U.S. participants. They would promote a cross-border flow of knowledge, mentoring of graduate students by both developing country and U.S. faculty, and a better understanding of global scientific issues. Moreover, U.S. professors would benefit by being able to communicate their research findings and by staying abreast of new problems and issues in developing countries.

## **CGIAR Linkages**

The CGIAR Centers with programs in Africa have had a long and successful history of providing research opportunities for graduate students from both industrial and developing countries. Many CGIAR scientists are members of Ph.D. dissertation committees and provide funding, research supervision, and access to CGIAR libraries. Since the success of the sandwich model depends on the quality of field research supervision, CGIAR researchers can fulfill this role as co-supervisors of Ph.D. theses.

## **ICT and Distance Education**

The four foundations supporting the renewal of universities in six African countries are financing highly targeted ICT (Information and Communication Technology) programs ranging from registration and financial management to library and research applications. A carefully constructed university-wide infrastructure can provide access to online journals and other web-based information, facilitate research collaboration with regional and international scientists, and perhaps eventually support web-based instruction.

Without question, there is significant potential for web-based distance education. A number of U.S. universities are offering courses and degrees over the Internet. However, this is not yet a proven model for granting degrees in most African countries (Till 2003).<sup>4</sup> The World Bank-financed African Virtual University (AVU) was established in 1997 to provide students in Africa with access to quality higher education in science and engineering. Although the AVU has offered courses, it does not yet offer full degree programs. The AVU recently moved its headquarters to Nairobi, developed a business plan, and expects to be financially self-sufficient within ten years.

A recent USAID contract with Virginia Tech includes a feasibility study for offering distance learning courses for students in Ethiopia. The National Association of Agricultural Economics Administrators (NAAEA) has prepared a distance education proposal to deliver graduate education in agricultural economics to low- and middle-income countries (Coffey 2002). The Institute for Food Laws and Regulations at Michigan State University has created six distance education courses on food laws and regulations, courses which are noted for their cost effectiveness (\$694 per course). Currently, students from 35 countries are enrolled in the courses, but none of the 35 are from Africa. This comparison illustrates the scientific divide between Africa and the rest of the world.

USAID's dot.com initiative and the investment of other donors will add substantially to the ICT infrastructure of developing countries. As this infrastructure grows, there will be more opportunities to test the benefits of providing education electronically.

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<sup>4</sup> Till (2003) summarizes his recent review of ICT in Africa as follows: "there has come to be a simplistic but widely held notion that ICTs will automatically benefit African education. The reality, however, is that ICTs can't go it alone: quality assurance, provided by adequate human resource infrastructure, is an essential part of the equation. Regrettably, such infrastructure is presently inadequate to meet the demand for post-secondary entry to higher education across the region in most of Africa."

# PROPOSED LAUNCH OF LONG-TERM TRAINING AND CAPACITY-BUILDING EFFORTS

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## (MALI, MOZAMBIQUE AND UGANDA)

BIFAD recommends launching a renewed global long-term training and capacity-building effort in Africa because of that continent's dire need for advanced degree graduates. By any yardstick, Africa is on the bottom of the human resource scale. The Director of Research for the Association of African Universities recently pointed out that the 1980s and 1990s have been lonesome and difficult decades for Africa's universities (Sawyer 2002).<sup>5</sup>

To address Africa's human resource crisis in agriculture and span the continent, this effort would be designed to support African-led initiatives in agriculture, rural development, agribusiness and human capacity development, and complement the U.S. government's new Initiative to End Hunger in Africa (IEHA). The training effort would begin in agriculture and agribusiness in the same three African countries in 2004: Mali<sup>6</sup> in Western Africa, Uganda<sup>7</sup> in Eastern Africa, and Mozambique<sup>8</sup> in Southern Africa. These countries are noted for their rapid rate of economic growth and political support for getting agriculture moving. BIFAD also recommends the establishment of regional summer institutes and participation in capacity-building regional programs to augment the efforts in these three countries and provide broader assistance in addressing the human resource needs of neighboring countries.

Given the broad range of options, particularly when including the opportunities afforded by new regional efforts, developing a coherent long-term training and capacity-building program for each country will be a challenge. A significant consideration for each plan ought to be how USAID investments can lead or integrate with those already underway or being planned by host countries, other donors, and multilateral institutions. BIFAD envisions that each country plan would span 10 to 15 years and include (1) graduate training (both at M.Sc. and Ph.D. levels), and (2) capacity-building efforts offering pre-graduate training, and perhaps short courses. The capacity-building component would include funding to rebuild the scientific infrastructure of a host-country university or Faculty of Agriculture and support for research, sabbatical leaves, and rebuilding computer and library systems.

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<sup>5</sup> The rise, decline and renewal of higher education in Africa is well documented. See Coleman and Court 1983; Eicher 1990; Saint 1992; Thimm 1992; Fine 1994; Lynam & Blackie 1994; Mule 1996; Mule et al 2002; Mrema 1997; Oniang'o and Eicher 1998; Eicher 1999; Michelsen et. al. 2003; Eicher & Rukuni 2003.

<sup>6</sup> Mali: For more information, see World Bank 1999; Bingen et. al. 2000; Dembele, Tefft and Staatz 2000.

<sup>7</sup> Uganda: Ackello-Ogutu and Mwangi 1995; Wessell 1998; Norman 1998; Mule, Ngugi and Norman 2002; Obwana & Norman 2002; Mario et. al. 2001; Musisi & Muwanga 2001; Makerere University 2002.

<sup>8</sup> Mozambique: Anandajaysekaram et. al. 1996; Jones & Blackie 1991; MADER 2000; Mozambique 2000; World Bank 2001, 2002a; Bias & Donovan 2002; Eicher 2002; and Wingert 2002.

Each country plan ought to consider the opportunities offered by involving U.S. educational and other institutions, as well as third-country institutions—perhaps as a means of building regional capabilities. U.S. universities offer superior faculties and research facilities that could be used as part of a sandwich course of study for most students, perhaps reserving more extensive U.S. study for a small number of particular students. Special attention will have to be given to developing criteria for the selection of students for overseas graduate training. A selection panel ought to be convened in each country to ensure that the individuals are selected for training because they show promise of institutional commitment and academic performance rather than because of their length of government or university service.

BIFAD also encourages the initiation of a linkage (twinning) program to link one or more U.S. universities with one African University or Faculty of Agriculture in each of the three launch countries. This program would be similar to other USAID efforts in other parts of the world. This effort could be dubbed a Competitive Academic Partnership or “CAP.” This type of partnership will also help strengthen the capacities of higher education institutions in the United States and host countries to conduct their research, teaching and outreach activities in support of local, regional and national development agendas. Finally, this part of the plan will promote greater involvement of U.S. colleges and universities in economic and social development programs, increase their participation in global networks, and enhance their capacity to channel new knowledge about global problems back into U.S. classrooms.

**Preparation of Country Human Capital Proposals:  
*Mali, Uganda and Mozambique***

In brief, in each country a small design team of U.S. and African experts would work with a national stakeholder committee, the USAID mission and other relevant donors to assess country needs and ongoing advanced education activities. Each assessment will result in a country proposal for an integrated package spanning 10 to 15 years for long-term graduate training and capacity-building programs to suit the needs of that country. To ensure the long-term success of this effort, it is imperative that African voices and priorities take center stage and that the preparation of the country proposals for USAID support are integrated with the vision of the USAID country mission.

The proposed plan is to send a small (four-member) design team to each of the three African launch countries in late summer of 2003. The U.S. members of the LTT team will be drawn from U.S. higher education (such as ALO, CRSP, 1890s) and consulting firms. Working closely with the USAID mission in each country, a senior local consultant will be employed to assist in selecting the members of a stakeholder committee, choose other stakeholders to visit, and analyze existing assessments of graduate training needs in the context of national and sub-regional development and research priorities. The senior consultant will organize a stakeholder workshop to jointly determine LTT and capacity-building needs, priorities and targets. This approach will help ensure that training priorities and academic partnerships are driven by Africans and enhanced by input from African and U.S. universities and USAID missions. The stakeholder committees should include private and public sector representatives from the launch country, representatives of the government, appropriate university leadership, donors, and key public and

private institutions employing undergraduate and advanced degree holders in agriculture and rural development.

The design teams will produce a human capital country assessment report for each of the three launch countries. Each report will be based on the recommendations of the stakeholder committee, the U.S. and host country university or faculty of agriculture, and the USAID mission. Each country assessment will include a tailored blend of some of the following activities to be implemented:

- Long-term training by discipline and degree in the U.S.
- Long-term training in regional degree programs
- Short-term training in the host country
- Regional summer institutes
- Distance education programs
- Capacity-building activities to strengthen the host country university or Faculty of Agriculture and the potential role of U.S. universities

The LTT component of each country proposal will be based on the following information about the training needs and priorities of the host country:

- Host country self-initiated policy and institutional reforms and commitment to developing scientific infrastructure and incentives for agricultural graduates to return home after graduate study and pursue careers in the public and private sectors.
- Current training priorities in agriculture, rural development and agribusiness, and plans for expansion.
- Assessment of recently completed and ongoing academic linkages and training programs.
- Recommendations of a stakeholder workshop on training needs and priorities by degree and academic discipline.
- Relationship between USAID-funded LTT and projected training and staff development programs of other donors.
- Interest in participating in regional training programs such as distance education and M.Sc degree programs.
- The capacity-building component of the country human capital assessment should cover at least an initial ten-year time span and include the following issues:
  - Vision, strategy, priorities and political support for developing a high quality faculty or university of agriculture and other complementary core institutions, such as research and extension systems.
  - Historical assessment of donor-funded projects for faculties and universities of agriculture.
  - Current and planned investments by other donors in capacity building in the chosen faculty or university of agriculture.

- The stakeholders' recommendation on the faculty or university of agriculture to be strengthened through a twinning or partnership program (the "CAP") and the types of activities to be supported.
- The division of labor between host country faculty or university of agriculture, the activities to be accomplished through an academic partnership, the outcomes to be achieved by phase and the budget for each phase, and plans to disburse grant funds between the U.S. university and the African university or faculty of agriculture.
- Regional training programs to be strengthened through mobilization of private sector support for scholarships for summer institutes and mini capacity-building grants (e.g., computers) for African faculties of agriculture.

After the completion of the country assessments for each of the three launch countries, USAID mission and program officials—working with stakeholders as appropriate—will determine the most suitable providers for the major components of each country proposal. Providers will be selected by competitive bid by USAID, perhaps through an experienced contractor such as the ALO or the USDA. The process would include convening a selection committee to draw up selection criteria, then running one or more competitions for grants to implement the components of the plan based on input from the African University stakeholder committee, BIFAD, USAID missions and USAID/Washington<sup>9</sup>. The contractor will issue a call for proposals from U.S. universities and other providers, depending on the activities called for by the plan.

Proposals by prospective providers should (1) include innovations to reduce the cost of training (e.g., sandwich courses, distance education), (2) increase the returnee rate of students trained abroad, and (3) enhance the capacity of partnering institutions to contribute to broad-based agricultural development, including demand-driven training and outreach programs for the private sector and civil society. Capacity-building proposals should be of mutual benefit to the U.S. and host country university or faculty of agriculture and attract support from the private and NGO sectors.

## **INVESTING IN REGIONAL CAPACITY-BUILDING PROGRAMS**

Since the LTT/capacity-building program will be launched in only three of Africa's 48 countries, we propose supplementing these country programs with USAID investments in several regional training programs to achieve a more immediate Africa-wide impact and also enrich and reinforce the capacity-building programs in the three initial target countries. Four regional training activities are proposed for USAID consideration:

**Summer Institutes.** We propose that USAID finance a series of summer institutes, taught by American and African professors and members of the private sector, that would be held in several locations in Africa. These institutes would be demand driven on a range of technical or policy topics or topics identified by a group of African scientists, teachers, and policy makers. The institutes would help build

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<sup>9</sup> The selection committee will prepare selection criteria which will conform to USAID-wide criteria and meet the requirements of the country and the local university, and of the USAID missions strategic objectives.

cross-border coalitions of scientists who would exchange information and lay the foundation for cross border and regional research programs. The summer institutes would provide an opportunity for American professors to interact with African scientists, develop new professional partnerships, and stay abreast of the changing research problems in Africa.

**Regional Masters Degree Programs.** Because of the decline in the quality of M.S. degree training programs in many agricultural disciplines in African universities, there is a need for donors to make strategic investments in strengthening M.S. graduate programs. Over the past two years a committee representing 16 agricultural economics departments in 12 countries in eastern, central and southern Africa has developed a proposal to offer a high-quality Masters degree in Agricultural and Applied Economics in Africa beginning in late 2004 or early 2005 (Oluoch-Kosura and Fine 2003). An interim secretariat has been set up in the IDRC office in Nairobi, and an Advisory Committee has been formed under the leadership of Harris Mule of Kenya. The proposal for this program is now being finalized and will be reviewed at the forthcoming IAAE (International Association of Agricultural Economists) conference in Durban in August and at a major conference in October for the key stakeholders and potential contributors from the international donor community. This proposal should be carefully examined by USAID because it represents an African-led initiative to deal with the declining quality of M.S. programs in many African universities and because of the strong demand for well-trained agricultural economists, especially in the private sector.

**The Forum for Agricultural Resource Husbandry.** In 1993, the Rockefeller Foundation launched the Forum Program to shore up the research component of M.Sc. theses of students enrolled in all fields of agriculture in universities in Eastern and Southern Africa. The Rockefeller Foundation recently commissioned an evaluation of the first decade of operation of the Forum. The evaluation team praised the accomplishments of the Forum and recommended that the program should move to a new phase with a broader base of donor support (Mule, Ngugi and Norman 2002). Since the Forum program covers all fields of agriculture and agribusiness, USAID should consider supporting the second phase of this innovative and highly praised human capital improvement program.

**Distance Education.** We recommend that USAID support modest investments in distance education in order to gain experience on how to reduce the cost of higher education. For example, grants could be awarded to Africans in food science departments and the food science industry to offer distance education courses in food laws and regulations. In addition, several African universities with Food Science departments should be encouraged to carry out research on food laws and food safety. Because of the heightened concern over food safety in industrial countries, it behooves African countries exporting livestock and other products to invest in shoring up their human capital in food laws, regulations and safety.

# RE-ESTABLISHING A USAID GLOBAL COMMITMENT TO LONG-TERM TRAINING AND CAPACITY BUILDING IN AGRICULTURE AND AGRIBUSINESS

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The goal of this program is to renew USAID support globally for long-term graduate degree training and capacity building in agriculture and agribusiness in developing countries. Through the program, we hope to stimulate a reemphasis on advanced training and strengthening human resources in developing countries as an integral part of USAID's strategies for development around the world.

The experience gained in the launch of this effort in Mali, Uganda and Mozambique and several regional programs will provide guidance to the Agency for scaling up this program in 2005. Further deliberation will be necessary to design programs in other countries in Africa and other regions in the world. Key attributes of this effort will be the program's reliance on host-country initiative and leadership and integration into USAID mission strategic objectives and programs and the Agency's new agriculture strategy. Furthermore, such reliance would necessitate close collaboration with key stakeholders in the ongoing assessment of country needs, implementation, and evaluation of efforts within each country and region. Other crosscutting USAID initiatives may share objectives with the long-term training initiative (e.g., Women in Development) and building infrastructure necessary to facilitate broader approaches to training (e.g., the Dot.com initiative).

Special efforts will be made to build upon existing human capacity efforts by other donors and foundations (e.g., the Partnership for Higher Education in Africa). This collaboration will be critical to mutually leveraging the limited resources of individual organizations. BIFAD will assess lessons from the initial launch of the long-term training and capacity-building programs and factor this experience into the design of LTT/capacity-building programs as they are scaled up in other regions of the world.

Special attention will be given to the following issues in the further development of this BIFAD initiative:

- Selection of the visiting design teams and how they undertake their assessment of LTT and capacity-building activities
- Developing criteria for the selection of students for overseas graduate training
- Developing guidelines for awarding capacity-building grants
- Developing criteria for awarding grants to organizations offering regional graduate degree programs
- Developing criteria for selecting U.S. and African universities to offer regional summer institutes in Africa
- Participation of the private sector in capacity building in food and agriculture

The rise, decline and renewal of interest in training parallels a similar cycle of rise, decline and renewal of donor interest in funding agriculture and rural development projects in developing countries (Kellogg and Schram 2000). For example, the World Bank's annual lending to agriculture is currently less than 10 percent, an all-time low.

But there are hopeful signs that the situation is improving and that training the next generation of agricultural specialists will become a priority. One such sign is the World Bank's new rural development strategy, which will, hopefully, mobilize increased donor support for agriculture (2003). Another is the fact that BIFAD and the ALO (Association Liaison Office) are prepared to help USAID incorporate LTT and capacity building into its new agricultural strategy (USAID 2003).

Several decades ago, Nobel Laureate T.W. Schultz (1981) pointed out that investments in human capital and research can play a critical role in producing new knowledge for development. Developing nations urgently need scientists, policy makers, teachers, regulators, legal managers—and agricultural and rural development experts—to deal with biotechnology, trade and agribusiness. The question is: Who will train them?

# APPENDIX

## COMMENTS ON DRAFT PROPOSAL

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### Education

Malcolm Blackie	Formerly, University of Zimbabwe and formerly Rockefeller Foundation, Southern Africa
Joan M. Claffey	Association Liaison Office for University Cooperation in Development
Brent Craig	Louisiana State University
Eric Crawford	Michigan State University
Robert Evenson	Yale University
Russ Freed	Michigan State University
John L. Graham	Delaware State University
Graham Hill	University of Zimbabwe
Melba Lacey	Michigan State University
Chris Langdon	Oregon State University
Mywish Maredia	Michigan State University
W. L. Nieuwoudt	University of Natal
B. Onuma Okezie	Alabama A&M University
Vernon Ruttan	University of Minnesota
David Sammons	Purdue University
John Staatz	Michigan State University
Richard C. Sutton	University of Georgia Board of Regents
Murari Suvedi	Michigan State University
Goro Uehara (Soils CRSP)	University of Hawaii
Norman Uphoff	Cornell University
Larry Vanderhoef	Univ. of California/Davis
Tim Williams	University of Georgia

## **Foundations**

Akin Adesina	Rockefeller Foundation, Nairobi
Debby Delmer	Rockefeller Foundation, New York
Joe DeVries	Rockefeller Foundation, Nairobi
Bob Herdt	Rockefeller Foundation, New York
John Lynam	Rockefeller Foundation, Nairobi
Peter Matlon	Rockefeller Foundation, New York
Narciso Matos	Carnegie Corporation, New York
Joyce Moock	Rockefeller Foundation, New York
Bharati Patel	Rockefeller Foundation, Nairobi

## **Government**

Jonathan Addleton	USAID/Mongolia
Gary Bittner	USAID/Washington
Carleene H. Dei	USAID/Washington
Bill Douglass	USAID/Washington
David Heesen	USAID/India
Michael Henning	USAID/Bosnia
Ghassan W Jamous,	USAID/Lebanon
Ray Kirkland, (Flora Majebelle, Onesmo Shuma)	USAID/Tanzania
Knott, Jay, et al.	USAID/Mozambique
Hiram Larew	USDA/Washington
George Like	USAID/Washington
Kimberley Lucas	USAID/Washington
Peter McCornick	USAID/Washington
Kevin Mullally	USAID/Mali
Terry Myers	USAID/Indonesia

Lawrence Rubey	USAID/Malawi
Jim Vermillion	USAID/Nicaragua
Gabriel Verret	USAID/Haiti
Pamela White	USAID/Mali
Regan Whitworth, Carol Payne-Flavell	USAID/Armenia
Keith Simmons, Tracy Thoman, Yeva Hyusyan	USAID/Armenia
Jonathan Sleeper	USAID/Washington
Al Williams, et al.	USAID/Caucasus
Roger Yochelson	USAID/Malawi
Raouf N Youssef	USAID/Lebanon

**International Organizations**

Gary Alex	World Bank/ Washington
Ruben Echeverria	Inter- American Bank, Washington
Howard Elliott	ISNAR
Uma Lele	World Bank/Washington
Joseph K. Mukubi	NARO, Kampala
David Rohrbach	ICRISAT, Zimbabwe
David Wilcock	DAI/Basel

## REFERENCES

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**Academy for Educational Development.** 2000. Tertiary Education Linkages Project (TELP). Mid-Term Evaluation Report Submitted to USAID/South Africa and the TELP Advisory Panel. Washington, D.C.: Academy for Educational Development.

**Ackello-Ogutu, C. and W. Mwangi.** 1995. Training of Agricultural Economists in Eastern and Southern Africa. In G.H. Peters and D.D. Hedley (eds.), *Agricultural Competitiveness: Market Forces and Policy Choice; Proceedings of the Twenty-Second International Conference of Agricultural Economists*, Harare, Zimbabwe, 22-29 August 1994. Aldershot, UK: Dartmouth.

**Agency for International Development (USAID).** 1985. *Plan for Supporting Agricultural Research and Faculties of Agriculture in Africa*. Washington, D.C.: USAID.

**Anandajayasekeram, et al.** 1996. Report on the Impact Assessment, Costing and Tracer Study of the SADCC/GT2 Project on Strengthening Postgraduate Training in Agriculture. Gaborone: SACCAR.

**Beintema, N.M., P.G. Pardey, and J. Roseboom.** 1998. *Educating Agricultural Researchers: A Review of the Role of African Universities*. EPTD Discussion Paper No. 36. Washington, D.C.: IFPRI and ISNAR.

**Bias, Calisto and Cynthia Donovan.** 2002. Gaps and Opportunities for Agricultural Sector Development in Mozambique: Background and Recommendations to the Rockefeller Foundation. New York: Rockefeller Foundation.

**BIFAD.** 1987. Planning for Long- term Institutional Linkages with Faculties of Agriculture: Occasional Paper No.11. Washington D.C.: BIFAD.

**Bingen, R. James, David Robinson and John Staatz,** eds. 2000. *Democracy and Development in Mali*. East Lansing, MI: Michigan State University Press.

**Binswanger, Hans P.** 2000. Scaling Up HIV/AIDS Programs to National Coverage. *Science*. Vol. 288, 273-278.

**Byerlee, Derek and Ruben Echeverria,** eds. 2002. *Agricultural Research Policy in an Era of Privatization*, New York: CABI Publishing.

**Coffey, Joe.** 2002. *Request for Proposal: Distance Delivery of Graduate Education in Agricultural Economics for Middle and Low-Income Countries*. Midlothian, MD.

**Coleman, J.S. and D. Court.** 1983. *University Development in the Third World*. Berkeley, CA.: University of California Press.

**Court, David.** 1994. Ph.D. Fellowships: The Rockefeller Foundation Experience. In *Ph.D. Education in Economics in Sub-Saharan Africa: Lessons and Prospects*. Edited by J.C. Fine et al. Nairobi: East African Publishers, pp.123-152.

- Court, David.** 1999. Financing Higher Education at Makerere: the Quiet Revolution. *Human Development*. September, pp.143-156.
- Dembele, Niama Nango, James F. Tefft and John M. Staatz.** 2000. *Mali's Market Information System: Innovative Evolution in Support of a Dynamic Private Sector*, Policy Synthesis No. 56. Bamako: USAID/Mali.
- Eicher, C.K.** 1990. Building African Scientific Capacity for Agricultural Development. *Agricultural Economics* 4(2): 117-143.
- Eicher, C.K.** 1999. *Institutions and The African Farmer*. Distinguished Economist Lecture. Mexico D.F. CIMMYT.
- Eicher, Carl K.** 2002. Mozambique: An Analysis of the Implementation of the Extension Master Plan. Staff Paper No. 2002. East Lansing, MI: Department of Agricultural Economics, Michigan State University. Available at <http://agecon.lib.umn.edu/msu/spo02-31.pdf>.
- Eicher, Carl K., and Mandivamba Rukuni.** 2003. The CGIAR in Africa: Past, Present and Future. Paper prepared for a meta-evaluation of the CGIAR. Washington D.C.: OED, World Bank.
- Fine, J.** et al (eds.) 1994: *PhD Education in Economics in Sub-Saharan Africa: Lessons and Prospects*, Nairobi East African Educational Publishers and African Economic Research Consortium.
- Fine, Jeffrey.** 1997. An African Based Doctoral Programme in Economics: Summary Report. Nairobi: African Economic Research Consortium.
- Gardner, John W.** 1964. *AID and The Universities*. New York: Education and World Affairs.
- Hansen, Gary E.** 1990. *Beyond the Neoclassical University: Agricultural Higher Education in the Developing World, An Interpretative Essay*. A.I.D. Program Evaluation Report No. 20. Washington: Agency for International Development.
- Harrar, J.G.** 1967. A Pattern for International Collaboration in Agriculture. *In Strategy Toward the Conquest of Hunger*. The Rockefeller Foundation, New York.
- Isleib, D.** 1998. ICOP FY98 Budget Report; Presented to ICOP, November 15, 1998; Washington, D.C.
- Johnson, G.L., and B.N. Okigbo.** 1989. Institution-Building Lessons from USAID's Agricultural Faculty Development Projects in Nigeria. *American Journal of Agricultural Economics* 71(5): 1211-1218.
- Jones, R.B., and M.J. Blackie.** 1991. An Approach to the Development of Expanded Postgraduate Training for Agricultural Scientists within the Southern African Development Coordination Conference Region. *Agricultural Systems* 35:251-264.

**Kellogg, Earl D. and Susan Schram.** 2000. Global Agriculture and Food Systems Development: A United States Policy Imperative. Report Prepared for the International Agricultural Group. Washington D.C.

**Lele, Uma and Arthur A. Goldsmith,** 1989. "Development of National Agricultural Research Capability: India's Experience with the Rockefeller Foundation and Its Significance for Africa. *Economic Development and Cultural Change.* 37 (January): 305-44.

**Lynam, J.K., and M.J. Blackie.** 1994. Building Effective Agricultural Research Capacity: The African Challenge. In J.R. Anderson (ed.), *Agricultural Technology: Policy Issues for the International Community.* Wallingford, UK: CAB International. pp. 106-134.

**Oluoch-Kosura, Willis and Jeffrey C. Fine.** 2003 Professional Masters Program in Agricultural Economics for Eastern and Southern Africa: Program Profile and Content. April 4. Nairobi. Draft.

**MADER.** 2000. Mozambique: PROAGRI: Institutional Reform of the Agricultural Research System. Maputo: Ministry of Agriculture and Rural Development.

**Makerere University.** 2002. Developing a Client-Oriented Agricultural Research and Dissemination Programme for the Faculty of Agriculture and Decentralized Districts: A Strategy. Kampala: Faculty of Agriculture, Makerere University.

**Mario, Mouzinho, P.Fry, L. Levey and A. Chilando.** 2001. Higher Education in Mozambique: A Case Study. Maputo: October.

**Mellor, John W.** 1963. Professional Training in Agriculture for Foreign Students. In *The Professional Education of Students from Other Lands.* New York. Council on Economic and Cultural Affairs.

**Michelsen, Heike et al.** 2003. *Improving Agricultural Research at Universities in Sub-Saharan Africa: A Study Guide.* The Hague: ISNAR.

**Mozambique, Republic of.** 2000. *Strategic Plan of Higher Education in Mozambique, 2000-2010.* Maputo: Ministry of Higher Education.

**Mrema, G.C.** 1997. Agricultural Research Systems in the ECA Sub-Region. In G.C. Mrema (ed.) *Development of a Long Term Strategic Plan for Agricultural Research in the Eastern and Central African Region.* Kampala, Uganda: ASARECA.

**Mule, H. (Chairman).** 1996. *Partnership for Capacity Building in Africa: A Report of the Working Party on The Impact of Bank Policies, Instruments and Operational Practices on Capacity Building in Africa.* Washington, D.C.: World Bank. October.

**Mule, Harris, David Ngugi and D.W. Norman.** 2002. Forum for Agricultural Resource Husbandry: Overview and Proposal for Future Direction. Report Prepared for the Rockefeller Foundation. New York: Rockefeller Foundation.

**Musisi, Nakanyike B. and Nansozi K. Muwanga.** 2001. Makerere University in Transition 1993-2000: Opportunities and Challenges. Kampala: Makerere Institute of Social Research.

**Norman, D.W.** 1998. *Institutional Capacity with Reference to Applied Microeconomics in Eastern and Southern Africa*. Nairobi: Rockefeller Foundation.

**Obwona, M. and D. Norman.** 2002. Status of Agricultural Economics in Selected Countries in Eastern and Southern Africa. Available at <http://www.ifpri.org>

**Odhiambo, T.R.** 1967. East Africa: Science for Development. *Science* 158:876-881.

**Oniang'o, R., and C.K. Eicher.** 1998. Universities and Agricultural Development in Kenya: An Agenda for Renewal. Paper presented at the Conference Transforming the Agricultural Research System in Kenya: Lessons for Africa. Bellagio Study and Conference Center, Bellagio, Italy, October 19-3, 1998.

**Read, Hadley.** 1974. *Partners with India: Building Agricultural Universities*. Urbana, IL: University of Illinois.

**Saint, William.** 1992. Universities in Africa: Strategies for Stabilization and Revitalization. World Bank Technical Paper No.194. Washington: World Bank.

**Samoff, Joel and Bidemi Carol.** 2002. The Promise of Partnership and Continuities of Dependence: External Support to Higher Education in Africa. Paper presented at the 45<sup>th</sup> Annual Meeting of the African Studies Association. Washington, 5-8 December.

**Sanders, John H. et al.** 1989. Agricultural University Institution Building in Brazil: Successes, Problems and Lessons for Other Countries. In *American Journal of Agricultural Economics*. 71 (5):1206-1210.

**Sawyer, Akilagpa.** 2002. Challenges Facing Higher Education in Africa, Paper Presented at the 45<sup>th</sup> Annual Meeting of the African Studies Association, Washington, 5-8 December.

**Schultz, T.W.** 1981. *Investing in People: The Economics of Population Quality*. Berkeley: University of California Press.

**Smuckler, Ralph H.** 2003. *A University Turns to The World: A Personal History of The Michigan State University International Story*. East Lansing, MI: Michigan State University Press.

**Suedi, Murari.** 2003. E-mail January 23.

**Swanson, Burton.** 1986. The Contribution of U.S. Universities to Training Foreign Agricultural Scientists. In *The Agricultural Scientific Enterprise: A System in Transition*. Edited by L. Busch and W.B. Lacy. Boulder: Westview, 229-238.

**Thimm, H.U.** 1992. Professional Manpower for Agricultural Development in SADCC Countries. *Agricultural Economics and Rural Development* 2(1): 37-44.

**Till, Graham.** 2003. *Harnessing Distance Learning and Information and Communication Technologies for Higher Education in sub-Saharan Africa. An examination of experiences useful for the design of widespread and effective tertiary education in sub-Saharan Africa.* New York: Rockefeller Foundation.

**USAID.** 2003. A USAID Agricultural Sector Strategy. Washington D.C.: USAID, April 11, Draft.

**Turk, Kenneth L.** 1974. *The Cornell – Los Banos Story: Two Decades of Cooperation in Agricultural Education and Research Between Cornell University and the University of the Philippines.* Ithaca, NY: New York State College of Agriculture and Life Sciences at Cornell University.

**Wessell, K.L.** 1998. End of Term Report (1995-1997). Agricultural Research and Training Project. Kampala, Uganda, and Columbus, Ohio: Department of Agriculture Economics, Makerere University and Ohio State University.

**Wharton, Clifton R. Jr.** 1959. *The U.S. Graduate Training of Asian Agricultural Economists.* New York: The Council on Economic and Cultural Affairs.

**Willett, A.** 1998. Agricultural Education Review: Support for Agricultural Education in the Bank and by Other Donors. Executive Summary. Washington, D.C.: World Bank.

**Wingert, Stephen.** 2002. Agribusiness Education in Mozambique: 2004-2010: Concept Paper. Santa Rosa, CA: Wingerts Consulting. August.

**World Bank.** 1992. *World Bank Assistance to Agricultural Higher Education, 1964-1990.* Washington, D.C.: Operations Evaluation Department, World Bank.

**World Bank.** 1998. Project Related Training. In *Agricultural Technology Notes No 20.* Washington: World Bank.

**World Bank.** 1999. Mali: Agricultural Services Project. Implementation Completion Report. Washington. World Bank.

**World Bank.** 2001. Mozambique: Agricultural Services and Rehabilitation Project. Implementation Completion Report. Washington: World Bank

**World Bank.** 2002. *Constructing Knowledge Societies: New Challenges for Tertiary Education.* Washington. World Bank.

**World Bank.** 2002. *Project Appraisal Document on a Proposed Credit to the Republic of Mozambique for a Higher Education Project.* Report No. 22962-Moz. Washington: World Bank. February 4.

**World Bank.** 2003. *Reaching the Rural Poor: A Renewed Strategy for Rural Development.* Washington. World Bank.

**Yamano, T. and T.S. Jayne.** 2002. Measuring the Impact of Prime–Age Adult Death of Rural Households in Kenya. Tegemeo Working Paper 5. Nairobi: Tegemeo Institute of Agricultural Policy and Development. October.

